

WHAT IS CLAIMED IS:

1. A disk drive comprising:

a head which reads out a data signal recorded in a disk medium; and

5 a read channel which includes a signal processing unit having lower cut-off frequency characteristics and including a filter circuit which carries out removal of low-frequency noise of the data signal outputted from the head, an extracting unit which extracts a component  
10 of a shift in a base line of the data signal processed by the signal processing unit, a compensating unit which removes the component of the shift in the base line from the data signal, and a decoding unit which decodes the recording data from the data signal.

15 2. The disk drive according to claim 1, wherein the signal processing unit includes a high-pass filter as the filter circuit and includes a variable gain amplifier circuit and a low-pass filter.

20 3. The disk drive according to claim 1, wherein the extracting unit has:

a generator which generates an ideal data signal;

a subtracting unit which outputs a difference data signal according to difference between the ideal data signal and a data signal processed by the signal  
25 processing unit; and

a filter unit including a high-frequency cut-off filter which processes the difference data signal, the

filter unit generating a signal corresponding to the component of the shift in the base line.

4. The disk drive according to claim 1, wherein the extracting unit has:

5           a generator which generates an ideal data signal;  
          a subtracting unit which outputs a difference data signal according to difference between the ideal data signal and a data signal processed by the signal processing unit; and

10           an adjusting unit including a gain adjusting circuit and a high-frequency cut-off filter, which process the difference data signal, the adjusting unit generating a signal corresponding to the component of the shift in the base line.

15           5. The disk drive according to claim 1, wherein the extracting unit has:

          a generator which generates an ideal data signal;  
          a subtracting unit which outputs a difference data signal according to difference between the ideal data signal and a data signal processed by the signal processing unit; and

20           an adjusting unit including a gain adjusting circuit and an integrating circuit, which have high-frequency cut-off characteristics processing the difference data signal, the adjusting unit generating a signal corresponding to the component of the shift in the base line.

6. The disk drive according to claim 3, further comprising a parameter adjusting unit which adjusts a cut-off frequency parameter of the high-frequency cut-off filter included in the extracting unit.

5           7. The disk drive according to claim 4, further comprising a parameter adjusting unit which adjusts a cut-off frequency parameter of the high-frequency cut-off filter included in the extracting unit and a gain parameter set into the gain adjusting circuit.

10           8. The disk drive according to claim 5, further comprising a parameter adjusting unit which adjusts a gain parameter set into the gain adjusting circuit included in the extracting unit.

15           9. A disk drive using a disk medium in which a plurality of groups of data tracks for recording a data signal is formed by a perpendicular magnetic recording method and each group of data tracks is managed in each plurality of zones, comprising:

20           a head to read out a data signal recorded in a disk medium in read operation; and

            a read channel to process the data signal outputted from the head by a PRML signal processing method to reproduce recording data,

            wherein the read channel includes:

25           a high-pass filter circuit having lower cut-off frequency characteristics;

            a signal processing unit which generates sample

data obtained from the data signal outputted from the high-pass filter circuit by a PR type of waveform equalizing processing;

5 a decoding unit to decode the recording data from the sample data;

an extracting unit which extracts a component of a shift in a base line included in the data signal according to difference data between the sample data and an ideal sample data; and

10 a compensating unit which removes the component of the shift in the base line from the data signal to transmit the data signal to the signal processing unit.

10. The disk drive according to claim 9, wherein the decoding unit includes a Viterbi detector which carries out ML type of data detection processing from the sample data, and which further comprising  
15 a generator which generates the ideal sample data from a data series detected by the Viterbi detector.

11. The disk drive according to claim 9, wherein  
20 the extracting unit includes a high-frequency cut-off filter which processes the difference data signal, and which further comprising a parameter adjusting unit which adjusts a cut-off frequency parameter of the high-frequency cut-off filter according to a zone of  
25 a read object decided in the read operation.

12. The disk drive according to claim 9, wherein the extracting unit includes a high-frequency cut-off

filter and a gain adjusting circuit which process the difference data signal, and which further comprising a parameter adjusting unit which adjusts a cut-off frequency parameter of the high-frequency cut-off filter and a gain parameter set in the gain adjusting circuit according to a zone of a read object decided in the read operation.

13. The disk drive according to claim 9, wherein the extracting unit includes an integrating circuit and a gain adjusting circuit which have high-frequency cut-off characteristics processing the difference data signal, and which further comprising a parameter adjusting unit which adjusts a gain parameter set in the gain adjusting circuit according to a zone of a read object decided in the read operation.

14. The disk drive according to claim 9, wherein the extracting unit includes a high-frequency cut-off filter which processes the difference data signal, and which further comprising a parameter adjusting unit which adjusts a cut-off parameter of the high-frequency cut-off filter according to a temperature value detected in the read operation.

15. The disk drive according to claim 9, wherein the extracting unit includes a high-frequency cut-off filter and a gain adjusting circuit which process the difference data signal, and which further comprising a parameter adjusting unit which adjusts a cut-off

frequency parameter of the high-frequency cut-off filter and a gain parameter set in the gain adjusting circuit according to a temperature value detected in the read operation.

5           16. The disk drive according to claim 9, wherein the extracting unit includes an integrating circuit and a gain adjusting circuit which have the high-frequency cut-off characteristics processing the difference data signal, and which further comprising a parameter  
10           adjusting unit which adjusts a gain parameter set in the gain adjusting circuit according to a temperature value detected in the read operation.

          17. The disk drive according to claim 9, further comprising: a retry control unit which carries out  
15           retry of the read operation in the case that data decoded by the decoding unit is error data in the read operation; and a parameter adjusting unit which adjusts a cut-off frequency parameter of the high-frequency cut-off filter included in the extracting unit in the  
20           retry operation.

          18. The disk drive according to claim 9, wherein the extracting unit includes a high-frequency cut-off filter and a gain adjusting circuit which process the difference data signal, and which further comprising  
25           a retry control unit which carries out retry of the read operation in the case that data decoded by the decoding unit is error data in the read operation; and

a parameter adjusting unit which adjusts a cut-off frequency parameter of the high-frequency cut-off filter and a gain parameter set in the gain adjusting circuit in the retry operation.

5           19. The disk drive according to claim 1, wherein the extracting unit includes a integrating circuit and a gain adjusting circuit which have the high-frequency cut-off characteristics processing the difference data signal, and which further comprising a retry control  
10 unit which carries out retry of the read operation in the case that data decoded by the decoding unit is error data in the read operation; and a parameter adjusting unit which adjusts a cut-off frequency parameter of the high-frequency cut-off filter and a  
15 gain parameter set in the gain adjusting circuit in the retry operation.

20           20. A read channel which is applied to a disk drive using a head to read out a data signal recorded in a disk medium by a perpendicular magnetic recording method and processes the data signal outputted from the  
20 head by a PRML signal processing method to reproduce recording data, comprising:

a high-pass filter having lower cut-off frequency characteristics;

25           a signal processing unit which generates sample data obtained from the data signal outputted from the high-pass filter circuit by a PR type of waveform

equalizing processing;

a decoding unit to decode the recording data from the sample data;

an extracting unit which extracts a component of a shift in a base line included in the data signal according to difference data between the sample data and an ideal sample data, the extracting unit including an integrating circuit or a gain adjusting circuit which has a high-frequency cut-off filter or high-frequency cut-off characteristics and generating a signal corresponding to the component of the shift in the base line;

a compensating unit to remove the component of the shift in the base line from the data signal to transmit the data signal to the signal processing unit; and

a register to adjust a cut-off frequency parameter of the high-frequency cut-off filter and a gain parameter set in the gain adjusting circuit.

21. A method of data reproducing for a disk drive having a disk medium and a read channel which includes an unit for extracting a component of a shift in a base line included in a data signal, the method comprising:

decoding recording data from the data signal recorded in the disk medium in read operation;

deciding whether or not the decoded data is error data in the read operation;

starting retry of the read operation in the case



that the decoded data is the error data; and

adjusting channel parameters of the read channel  
in the retry operation, the channel parameters  
including various kinds of parameters concerning  
5 extracting processing of the unit.